II. REJECTION OF CLAIMS 18-24, 33, AND 34 UNDER 35 U.S.C. § 102(E) AS BEING UNPATENTABLE OVER BILLSTRÖM ET AL. (USP# 5,590,133)

The present invention as recited, for example, in claim 18 as amended herein, relates to a method comprising

> allocating, by the base station, one time slot exclusively for signaling in the uplink direction from a respective mobile station in accordance with a predeterminable sequence of the mobile stations, where even if the respective mobile station does not transmit any packet data for the duration of a current and next macroframe, the respective mobile station may transmit in the allocated time slot for signaling.

Thus, a time slot for signaling in the uplink direction is exclusively allocated to the mobile station. The exclusively allocated time slot is one of the time slots for signaling which appears at cyclic intervals. The exclusively allocated time slot is selected according to a predeterminable sequence from the cyclically appearing time slots for signaling. See page 14, lines 3-7 of the specification.

As pointed out in the Amendment filed January 24, 2003, Billström discloses a method of packet data transmission in which one or more packet data channels are provided for packet data transmission (see column 6, line 66 to column 7, line 1). The common packet data channel(s) is/are allocated in a cell in which packet data traffic occurs, on a semi-permanent basis or dynamically, depending on the present load situation. The allocation of the packet data channels is controlled by a base station controller. The degree of packet data channel support in a cell can be configurable (see column 7, lines 2-10). The common packet data channel is described as a logical channel on a physical TDMA channel, i.e., a time slot which is optimized for the common packet data transmission from and to plural mobile stations, which are capable of receiving packet data (see column 7, lines 13-16). The common packet data channels are used for data transfer and the associated signaling (see column 7, lines 17-18).

Billström teaches that a common packet data channel is provided for packet data transmission, e.g. with GPRS. This packet data channel is logically allocated to plural subscribers for packet data transmission. Physically, the common packet data channel is only allocated to a single subscriber when data is to be transmitted for the subscriber. If the common packet data channel is physically allocated to the mobile station, measurement results and signaling data can also be transmitted over the common packet data channel. However, if the common packet data channel is not physically allocated to the subscriber to enable transmission of packet data during a specific time interval, no transmission of measurement results or

signaling data can take place during this time interval. Therefore, for example, values previously calculated based on signaling data or measurement results lose their validity and have to be newly determined when the physical channel is reallocated. Alternatively to the new determination of the values, the base station has to ensure, with a renewed allocation of the physical channel, that radio parameters are set such that in each case a secured transmission is possible. In this case, an excessive or even maximum transmitter power setting may be used.

As stated in the previous Amendment, the teachings of Billström are not the same as the claimed invention. According to the present invention, a time slot is exclusively allocated to a mobile station for uplink communication according to a predeterminable sequence. In the allocated time slot, the mobile station transmits signaling data (that is not communicated beyond the base station), even when the mobile station transmits no packet data during the period of the present and following macroframe. In this way, signaling data of the mobile station is present in the base station, even when the mobile station transmits no packet data. Since signaling data for the mobile station are thereby permanently present in the base station, radio parameters for any data transmission can always track the present circumstances. See page 15, lines 6-14 of the Applicant's specification.

Billström does not disclose or suggest that a time slot for signaling in the uplink direction is exclusively allocated to a mobile station by the base station according to a predeterminable sequence, and that the mobile station transmits signaling data in the allocated time slot, even when the mobile station transmits no packet data in the present and following macroframe. Transmitting signaling data of a mobile station independently of packet data and even when packet data are absent, ensures that the base station also receives signaling messages from the mobile station when the mobile station transmits no packet data. According to the present invention, it is possible to provide continuously updated radio parameters at the base station which can immediately be used for configuring the radio interface when packet data transmission is resumed.

None of the above features are disclosed or suggested by Billström. Therefore, Billström does not disclose or suggest the features recited in claim 18 of the present application.

Similar to claim 18, claim 33 recites

> a control device to allocate time slots to the plurality of mobile stations, wherein just one time slot for signaling in the uplink direction is exclusively allocated to a respective mobile station according to a predeterminable sequence of the mobile stations, the allocation being independent of any packet data transmission

so that the mobile station transmits in the time slot allocated for signaling even if the mobile station does not transmit any packet data for the duration of a current and next macroframe,

which distinguishes over the teachings of Billström. Therefore, Billström also does not disclose the features recited in claim 33 of the present application.

Claims 19-24 and claim 34 depend from claims 18 and 33, respectively. Therefore, for at least the reasons that claims 18 and 33 distinguish over the cited prior art, it is respectfully submitted that claims 19-24 and 34 also distinguish over the cited prior art.

In view of the above, it is respectfully submitted that the rejection is overcome.

III. REJECTION OF CLAIMS 25 AND 26 UNDER 35 U.S.C. § 103(A) AS BEING UNPATENTABLE OVER BILLSTRÖM ET AL. IN VIEW OF HAMALAINEN ET AL. (USP# 5,640,395)

The comments in section II, above, also apply here because claims 25 and 26 depend from claim 18 and Hamalainen et al. does not suggest modifying Billström to overcome the deficiencies discussed above. Therefore, for at least the reasons that claim 18 distinguishes over the cited prior art, it is respectfully submitted that claims 25 and 26 also distinguish over the cited prior art.

In view of the above, it is respectfully submitted that the rejection is overcome.

IV. REJECTION OF CLAIMS 31 AND 32 UNDER 35 U.S.C. § 103(A) AS BEING UNPATENTABLE OVER BILLSTRÖM ET AL. AS APPLIED TO CLAIM 18 ABOVE, AND FURTHER IN VIEW OF HAMALAINEN ET AL. AND SOWLES ET AL. (USP# 5,659,545)

The comments in section II, above, also apply here because claims 31 and 32 depend from claim 18 and Sowles et al. and Hamalainen et al. does not suggest modifying Billström to overcome the deficiencies discussed above. Therefore, for at least the reasons that claim 18 distinguishes over the cited prior art, it is respectfully submitted that claims 31 and 32 also distinguish over the cited prior art.

In view of the above, it is respectfully submitted that the rejection is overcome.

V. CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art, and therefore defines allowable subject

matter. A prompt and favorable reconsideration of the rejection along with an indication of allowability of all pending claims are therefore respectfully requested.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please AMEND the claims in accordance with the following:

18. (TWICE AMENDED) A method for configuring a radio interface between a mobile station and a base station of a time-division multiplex mobile radio system for packet data transmission, the method comprising:

defining a transmission from a mobile station to the base station as an uplink direction;

defining a transmission from the base station to a mobile station as a downlink direction;

forming a channel by at least one time slot per time-division multiplex frame, wherein the packet data transmission from a plurality of mobile stations takes place via the channel;

combining frames to form a macroframe;

providing a time slot for signaling at cyclic intervals in the channel; and

allocating, by the base station, [just] one time slot exclusively for signaling in the uplink direction from a respective mobile station in accordance with a [predetermined] predeterminable sequence of the mobile stations, where even if the respective mobile station does not transmit any packet data for the duration of a current and next macroframe, the respective mobile station may transmit in the allocated time slot for signaling.

19. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

determining a timing advance for the respective mobile station from transmissions by the mobile station in the allocated time slot; and

transmitting the timing advance in a time slot for signaling in the downlink direction to the corresponding mobile station.

20. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

defining the timing advance and values for a transmission power setting independently of one another.

21. (AS ONCE AMENDED) The method as claimed in claim 20, further comprising:

defining, additionally, the timing advance and the values for the transmission power setting from the time slots for packet data transmission.

22. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

using transmission block types of a predetermined size for specific configuration data in the time slots for signaling in the uplink direction.

23. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

transmitting configuration data defined in the downlink direction in time slots for packet data transmission.

24. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

providing, by the base station, the timing advance for the configuration of the radio interface without being controlled by a base station controller.

25. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

combining a plurality of time slots for signaling to form a signaling block.

26. (AS ONCE AMENDED) The method as claimed in claim 25, further comprising:

combining the time slots for signaling in accordance with a sequence which can be predetermined, wherein remaining time slots are provided for an adjacent cell measurement of the mobile station.

27. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

providing information in time slots for signaling with additional coding.

28. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

enabling the packet data transmission to take place in both the uplink and downlink directions independently of one another.

29. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

designating, additionally, the mobile stations for packet data transmission by abbreviated identifiers; and

allocating, via the time slots for signaling in the downlink direction, one or more time slots for signaling in the uplink direction to the mobile stations by means of indicator messages which contain abbreviated identifiers and time slot designations.

30. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

transmitting, by a mobile station per time slot for signaling in the uplink direction, a self-contained message which contains a reception level of the mobile station.

31. (AS ONCE AMENDED) The method as claimed in claim 18, further comprising:

providing transmissions, from the mobile station in the time slots for signaling allocated to it, access blocks having an extended preceding or subsequent guard time, whose transmission time results from a preceding transmission time, a signaled timing advance and an offset value.

32. (AS ONCE AMENDED) The method as claimed in claim 31, further comprising:

choosing the offset value such that a range which corresponds to the offset value is greater than the distance which the mobile station can travel between two transmissions for timing advance definitions at a maximum permissible speed.

33. (THREE TIMES AMENDED) A base station system for configuring a radio interface between a mobile station and a base station of a time-division multiplex mobile radio system for packet data transmission, comprising:

a base station;

a plurality of mobile stations, wherein a transmission from a mobile station to the base station is defined as an uplink direction, and a transmission from the base station to a mobile station is defined as a downlink direction;

a channel formed by at least one time slot per time-division multiplex frame, wherein the packet data transmission from the plurality of mobile stations takes place via the channel;

a macroframe formed from a combination of frames;

a time slot for signaling provided at cyclic intervals in the channel; and

a control device to allocate time slots to the plurality of mobile stations, wherein just one time slot for signaling in the uplink direction is allocated <u>exclusively</u> to a respective mobile station according to a [predetermined] <u>predeterminable</u> sequence of the mobile stations, the allocation being independent of any packet data transmission so that the mobile station may transmit in the time slot allocated for signaling even if the mobile station does not transmit any packet data for the duration of a current and next macroframe.

34. (AS ONCE AMENDED) The base station system as claimed in claim 33, wherein timing advances for the mobile stations are transmitted as configuration data for the plurality of mobile stations in a time slot for signaling in the downlink direction.